Appendix A

Claim Amendments

1. (Currently amended) A process for preparing an optically pure proton pump inhibitor (PPI) having a sulfinyl structure selected from the group consisting of ~~5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole,~~ (S)-5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, ~~5-difluoromethoxy-2-[(3,4-dimethoxy-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, 2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, 2-{[4-[3-methoxypropoxy)-3-methylpyridin-2-yl]methylsulphinyl}-1H-benzimidazole,~~ (S)-2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (S)-2-{[4-[3-methoxypropoxy)-3-methylpyridin-2-yl]methylsulphinyl}-1H-benzimidazole, (S)-5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl}-1H-imidazo(4,5-b)pyridine, (R)-5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-5-difluoromethoxy-2-[(3,4-dimethoxy-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-2-[3-

methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-2-{(4-(3-methoxypropoxy)-3-methylpyridin-2-yl)methylsulphinyl}-1H-benzimidazole and (R)-5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl)-1H-imidazol(4,5-b)pyridine ~~and 5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl]-1H-imidazo(4,5-b)pyridine~~ in enantiomerically pure or enantiomerically enriched form comprising oxidizing a corresponding sulfide of said PPI, wherein the oxidation is carried out in the presence of a chiral zirconium complex or a chiral hafnium complex.

2. (Currently amended) A process for preparing an optically pure PPI having a sulfinyl structure selected from the group consisting of ~~5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole,~~ (S)-5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, ~~5-difluoromethoxy-2-[(3,4-dimethoxy-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, 2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, 2-{[4-[3-methoxypropoxy)-3-methylpyridin-2-yl]methylsulphinyl}-1H-benzimidazole,~~ (S)-2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-

benzimidazole, (S)-2-{[4-[3-methoxypropoxy)-3-methylpyridin-2-yl]methylsulphinyl}-1H-benzimidazole, (S)-5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl}-1H-imidazo(4,5-b)pyridine, (R)-5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-5-difluoromethoxy-2-[(3,4-dimethoxy-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-2-{(4-(3-methoxypropoxy)-3-methylpyridin-2-yl)methylsulphinyl}-1H-benzimidazole and (R)-5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl)-1H-imidazol(4,5-b)pyridine ~~and 5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl}-1H-imidazo(4,5-b)pyridine,~~ in enantiomerically pure or enantiomerically enriched form comprising oxidizing a corresponding sulfide of said proton pump inhibitor (PPI) wherein the oxidation is carried out in the presence of a chiral zirconium complex.

3. (Previously presented) The process according to Claim 1, wherein the optically pure PPI having a sulfinyl structure is obtained in an optical purity of > 90%.

4. (Previously presented) The process according to Claim 1, wherein the oxidation is carried out using cumene hydroperoxide.

5. (Previously presented) The process according to Claim 1, wherein the chiral zirconium complex is selected from the group consisting of zirconium(IV) acetylacetonate, zirconium(IV) butoxide, zirconium(IV) tert-butoxide, zirconium(IV) ethoxide, zirconium(IV) n-propoxide, zirconium(IV) isopropoxide and zirconium(IV) isopropoxide/isopropanol, and wherein the chiral hafnium complex is selected from the group consisting of hafnium(IV) acetylacetonate, hafnium(IV) butoxide, hafnium(IV) tert-butoxide, hafnium(IV) ethoxide, hafnium(IV) n-propoxide, hafnium(IV) isopropoxide and hafnium(IV) isopropoxide/isopropanol.

6. (Previously presented) The process according to Claim 2, wherein the chiral zirconium complex is selected from the group consisting of zirconium(IV) acetylacetonate, zirconium(IV) butoxide, zirconium(IV) tert-butoxide, zirconium(IV) ethoxide, zirconium(IV) n-propoxide,

zirconium(IV) isopropoxide and zirconium(IV) isopropoxide/isopropanol.

7- 9. (Canceled)

10. (Previously presented) The process according to Claim 1, wherein the oxidation is carried out in the presence of an organic base.

11. (Previously presented) The process according to Claim 1, wherein the oxidation is carried out in the presence of a tertiary amine.

12. (Previously presented) The process according to Claim 1, wherein the oxidation is carried out in an organic solvent.

13. (Previously presented) The process according to Claim 1, wherein the oxidation is carried out in an organic solvent comprising 0 to 0.3% by volume of water.

14. (Previously presented) The process according to Claim 1, wherein the oxidation is carried out in an organic solvent which comprises methyl isobutyl ketone.

15-21. (Canceled)

22. (Withdrawn) An optically pure PPI prepared by the process according to claim 1 selected from the group consisting of (S)-5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (S)-2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (S)-2-{[4-(3-methoxypropoxy)-3-methylpyridin-2-yl]methylsulphinyl}-1H-benzimidazole or (S)-5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl)-1H-imidazo[4,5-b]pyridine, (R)-5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-5-difluoromethoxy-2-[(3,4-dimethoxy-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, (R)-2-{[4-(3-methoxypropoxy)-3-methylpyridin-2-yl]methylsulphinyl}-1H-benzimidazole and (R)-5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl)-1H-imidazo[4,5-b]pyridine.

23. (Previously presented) The process according to Claim 1, wherein the oxidation is carried out in the presence of a chiral auxiliary.

24. (Previously presented) The process according to Claim 23, wherein the chiral auxiliary is a chiral tartaric acid derivative.

25. (Previously presented) The process according to Claim 23, wherein the chiral auxiliary is selected from the group consisting of (+)-L-tartaric acid bis-(N,N-diallylamide), (+)-L-tartaric acid bis-(N,N-dibenzylamide), (+)-L-tartaric acid bis-(N,N-diisopropylamide), (+)-L-tartaric acid bis-(N,N-dimethylamide), (+)-L-tartaric acid bis-(N-pyrrolidinamide), (+)-L-tartaric acid bis-(N-piperidinamide), (+)-L-tartaric acid bis-(N-morpholinamide), (+)-L-tartaric acid bis-(N-cycloheptylamide), (+)-L-tartaric acid bis-(N-4-methyl-N-piperazinamide), dibutyl (+)-L-tartrate, di-tert-butyl (+)-L-tartrate, diisopropyl (+)-L-tartrate, dimethyl (+)-L-tartrate, diethyl (+)-L-tartrate, (-)-D-tartaric acid bis-(N,N-diallylamide), (-)-D-tartaric acid bis-(N,N-

dibenzylamide), (-)-D-tartaric acid bis-(N,N-diisopropylamide), (-)-D-tartaric acid bis-(N,N-dimethylamide), (-)-D-tartaric acid bis-(N-pyrrolidinamide, (-)-D-tartaric acid bis-(N-piperidinamide), (-)-D-tartaric acid bis-(N-morpholinamide), (-)-D-tartaric acid bis-(N-cycloheptylamide), (-)-D-tartaric acid bis-(N-4-methyl-N-piperazinamide), dibutyl (-)-D-tartrate, di-tert-butyl (-)-D-tartrate, diisopropyl (-)-D-tartrate, dimethyl (-)-D-tartrate and diethyl (-)-D-tartrate.

26. (Previously presented) The process according to Claim 23, wherein the chiral auxiliary is selected from the group consisting of (+)-L-tartaric acid bis-(N,N-dimethylamide), (+)-L-tartaric acid bis-(N-pyrrolidinamide), (+)-L-tartaric acid bis-(N-morpholinamide), (-)-D-tartaric acid bis-(N,N-dimethylamide), (-)-D-tartaric acid bis-(N-pyrrolidinamide) or (-)-D-tartaric acid bis-(N-morpholinamide).

27. (Previously presented) The process according to Claim 23, wherein the chiral zirconium complex is selected from the group consisting of zirconium(IV) acetylacetonate, zirconium(IV) butoxide, zirconium(IV) tert-butoxide, zirconium(IV) ethoxide, zirconium(IV) n-propoxide,

zirconium(IV) isopropoxide, and zirconium(IV) isopropoxide/isopropanol, and wherein the chiral auxiliary is selected from the group consisting of (+)-L-tartaric acid bis-(N,N-diallylamide), (+)-L-tartaric acid bis-(N,N-dibenzylamide), (+)-L-tartaric acid bis-(N,N-diisopropylamide), (+)-L-tartaric acid bis-(N,N-dimethylamide), (+)-L-tartaric acid bis-(N-pyrrolidinamide), (+)-L-tartaric acid bis-(N-piperidinamide), (+)-L-tartaric acid bis-(N-morpholinamide), (+)-L-tartaric acid bis-(N-cycloheptylamide), (+)-L-tartaric acid bis-(N-4-methyl-N-piperazinamide), dibutyl (+)-L-tartrate, di-tert-butyl (+)-L-tartrate, diisopropyl (+)-L-tartrate, dimethyl (+)-L-tartrate, diethyl (+)-L-tartrate, (-)-D-tartaric acid bis-(N,N-diallylamide), (-)-D-tartaric acid bis-(N,N-dibenzylamide), (-)-D-tartaric acid bis-(N,N-diisopropylamide), (-)-D-tartaric acid bis-(N,N-dimethylamide), (-)-D-tartaric acid bis-(N-pyrrolidinamide), (-)-D-tartaric acid bis-(N-piperidinamide), (-)-D-tartaric acid bis-(N-morpholinamide), (-)-D-tartaric acid bis-(N-cycloheptylamide), (-)-D-tartaric acid bis-(N-4-methyl-N-piperazinamide), dibutyl (-)-D-tartrate, di-tert-butyl (-)-

D-tartrate, diisopropyl (-)-D-tartrate, dimethyl (-)-D-tartrate and diethyl (-)-D-tartrate.

28. (Previously presented) The process according to Claim 23, wherein the chiral zirconium complex is selected from the group consisting of zirconium(IV) acetylacetonate, zirconium(IV) butoxide, zirconium(IV) tert-butoxide, zirconium(IV) ethoxide, zirconium(IV) n-propoxide, zirconium(IV) isopropoxide, or zirconium(IV) isopropoxide/isopropanol complex, wherein the chiral auxiliary is selected from the group consisting of (+)-L-tartaric acid bis-(N,N-diallylamide), (+)-L-tartaric acid bis-(N,N-dibenzylamide), (+)-L-tartaric acid bis-(N,N-diisopropylamide), (+)-L-tartaric acid bis-(N,N-dimethylamide), (+)-L-tartaric acid bis-(N-pyrrolidinamide), (+)-L-tartaric acid bis-(N-piperidinamide), (+)-L-tartaric acid bis-(N-morpholinamide), (+)-L-tartaric acid bis-(N-cycloheptylamide), (+)-L-tartaric acid bis-(N-4-methyl-N-piperazinamide), dibutyl (+)-L-tartrate, di-tert-butyl (+)-L-tartrate, diisopropyl (+)-L-tartrate, dimethyl (+)-L-tartrate, diethyl (+)-L-tartrate, (-)-D-tartaric acid bis-(N,N-diallylamide), (-)-D-tartaric acid bis-(N,N-

dibenzylamide), (-)-D-tartaric acid bis-(N,N-diisopropylamide), (-)-D-tartaric acid bis-(N,N-dimethylamide), (-)-D-tartaric acid bis-(N-pyrrolidinamide), (-)-D-tartaric acid bis-(N-piperidinamide), (-)-D-tartaric acid bis-(N-morpholinamide), (-)-D-tartaric acid bis-(N-cycloheptylamide), (-)-D-tartaric acid bis-(N-4-methyl-N-piperazinamide), dibutyl (-)-D-tartrate, di-tert-butyl (-)-D-tartrate, diisopropyl (-)-D-tartrate, dimethyl (-)-D-tartrate and diethyl (-)-D-tartrate, and wherein the oxidation is carried out in the presence of an organic base.

29. (Previously presented) The process according to Claim 23, wherein the chiral auxiliary is selected from the group consisting of (+)-L-tartaric acid bis-(N,N-dimethylamide), (+)-L-tartaric acid bis-(N-pyrrolidinamide), (+)-L-tartaric acid bis-(N-morpholinamide, (-)-D-tartaric acid bis-(N,N-dimethylamide), (-)-D-tartaric acid bis-(N-pyrrolidinamide) and (-)-D-tartaric acid bis-(N-morpholinamide), and wherein the oxidation is carried out in the presence of an organic base.

30. (Previously presented) The process according to Claim 23, wherein the chiral auxiliary is selected from the group consisting of (-)-D-tartaric acid bis-(N,N-dimethylamide), (-)-D-tartaric acid bis-(N-pyrrolidinamide) and (-)-D-tartaric acid bis-(N-morpholinamide), and wherein the optically pure PPI prepared by the process is (+)-pantoprazole.

31. (Currently Amended) The process according to Claim 23, wherein the chiral zirconium complex is selected from the group consisting of is zirconium(IV) n-propoxide, zirconium(IV) isopropoxide or zirconium(IV) isopropoxide/isopropanol complex, wherein the chiral auxiliary is selected from the group consisting of (+)-L-tartaric acid bis-(N,N-dimethylamide), (+)-L-tartaric acid bis-(N-pyrrolidinamide) and (+)-L-tartaric acid bis-(N-morpholinamide), wherein the oxidation is carried out using cumene hydroperoxide.

32. (Previously presented) The process according to Claim 23, wherein the chiral zirconium complex is selected from the group consisting of zirconium(IV) n-propoxide, zirconium(IV) isopropoxide and zirconium(IV)

isopropoxide/isopropanol complex, wherein the chiral auxiliary is selected from the group consisting of (+)-L-tartaric acid bis-(N,N-dimethylamide), (+)-L-tartaric acid bis-(N-pyrrolidinamide) or (+)-L-tartaric acid bis-(N-morpholinamide), wherein the oxidation is carried out using cumene hydroperoxide in the presence of a tertiary amine.

33. (Currently amended) A process for preparing an optically pure proton pump inhibitor (PPI) having a sulfinyl structure ~~selected from the group consisting of 5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole,~~ (S)-5-methoxy-2-[(4-methoxy-3,5-dimethyl-2-pyridinyl)methylsulphinyl]-1H-benzimidazole~~, 2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridinyl)methylsulphinyl]-1H-benzimidazole, 2-{[4-[3-methoxypropoxy)-3-methylpyridin-2-yl]methylsulphinyl}-1H-benzimidazole, and 5-methoxy-2-((4-methoxy-3,5-dimethyl-2-pyridylmethyl)sulphinyl}-1H-imidazo-(4,5-b)pyridine~~ in enantiomerically pure or enantiomerically enriched form comprising oxidizing a corresponding sulfide of said PPI, wherein the oxidation is carried out in the presence of a chiral zirconium complex or a chiral hafnium complex.

34. - 38. (Canceled)